EDITORIAL

Rebuilding Caribbean science

Much of the Caribbean has been devastated by two major hurricanes that struck last month. Hurricane Irma first rampaged through the eastern Caribbean, British and the U.S. Virgin Islands, Puerto Rico, and Cuba, leaving islands such as Barbuda and St. Martin nearly uninhabitable. Less than 2 weeks later, Hurricane Maria tore through Dominica and pummeled the Puerto Rican archipelago with great fury.

Today, just over 3 weeks after Hurricane Maria made landfall, most of Puerto Rico's 3.4 million residents are still without electricity, clean drinking water, and any means of communication. Compounding the situation, remote locations, vulnerable infrastructures, and disjointed communication between government and emergency response agencies have made recovery efforts move at a snail's pace. Damage estimates range from $45 billion to $95 billion.

"...recovery should be a priority for all."

The scientific infrastructure of Puerto Rico was not spared. Most campuses of the University of Puerto Rico and other private institutions suffered substantially. The Institute of Neurobiology, The Caribbean Primate Research Center, and the Arecibo Observatory—three world-class research centers in Puerto Rico—have been devastated. These institutions host numerous research efforts—including projects sponsored by the National Science Foundation, National Institutes of Health, National Aeronautics and Space Administration, and National Oceanic and Atmospheric Administration (among other U.S. agencies)—in areas such as nanotechnology, neuroscience, and vaccine development. Physical, logistical, and humanitarian obstacles are putting hundreds of studies at risk, including clinical and translational studies aimed at understanding diseases that affect Hispanic populations and are emerging threats in the Americas. Smaller individual laboratories at universities and private R&D efforts will also be affected severely.

The two hurricanes have also disrupted the education of tens of thousands of students and hampered undergraduate- and graduate-level research training programs. For decades, these training programs have been responsible for developing the next generation of Caribbean scientists, a group that contributes to diversifying and strengthening the U.S. and global scientific workforce.

Given the contributions of the Caribbean scientific community to research, training, and the manufacturing industry, recovery should be a priority for all. Science should be key to reconstruction; it can provide the evidence needed to guide and inform policy-makers, and the scientific workforce has important technical problem-solving skills that are critical for effective and sustainable rehabilitation. The lessons learned after the 2010 earthquake in Haiti about recovery and rebuilding with a focus on resiliency can be contextualized for this different but equally devastating natural disaster.

The scientific community in the Caribbean region is a resilient one. During this crisis, many research projects kept running without interruption. Communications with collaborators outside the Caribbean region have remained active. But many researchers need extraordinary help to recover. The good news is that scientific societies have stepped up. For example, the American Association for the Advancement of Science (AAAS, the publisher of *Science*) is helping by channeling funds to its Caribbean Division for scientific infrastructure rebuilding and by creating a mechanism for contributions to this division's efforts. The American Society for Biochemistry and Molecular Biology has launched a small grant program for researchers and students affected by the hurricanes. Ciencia Puerto Rico has established a registry to help coordinate and disseminate offers of aid to scientists and students in Puerto Rico and the Caribbean. Support from U.S. federal agencies in the form of emergency supplements and disaster research funds will also be a great boon for affected scientists, as well as for the advancement of knowledge regarding the impact and mitigation of natural disasters.

We who work in the Caribbean are all grateful for any support throughout this rough moment in our history. We will rise stronger and determined to advance science and serve society.

–Juan S. Ramírez Lugo and Carlos A. Torres-Ramos

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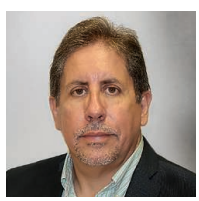

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